

Notice of Allowability

Application No.

10/813,993

Applicant(s)

DOWSKI ET AL.

Examiner

Art Unit

Sheela C. Chawan

2624

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Feb 09, 2006.
2. ☒ The allowed claim(s) is/are 1-18, 20, 21 and 23.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)1. ☒ Notice of References Cited (PTO-892) 5/5/05, 8/11/042. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date 3/31/044. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material5. ☐ Notice of Informal Patent Application (PTO-152)6. ☒ Interview Summary (PTO-413),
Paper No./Mail Date 4/28/06.7. ☒ Examiner's Amendment/Comment8. ☒ Examiner's Statement of Reasons for Allowance9. ☐ Other _____.

Examiner's Amendment

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mr. John Lindemann, Reg # 54,273 on 4/27/06.

The application has been amended as follows:

In the Claims:

Delete claims 24-26.

Delete claims 19, 27- 41.

DETAILED ACTION

Response to Amendment

2. Applicant's amendment filed on Feb 9, 2006 has been entered and made of record.

Claims 19, 22 and 24 - 41 are canceled.

Claims 24-26 are canceled by examiner's amendment.

Claims 1-18 and 20, 21 and 23, are pending in the application and Renumbered as 1-21.

Response to Arguments

3. Applicant's argument filed on Feb 9, 2006 have been fully considered and are persuasive, see remarks filed on Oct 17, 2005 page 10, lines 16- 26, page 11, lines 9-10, page 11, lines 14 - 15, page 11, lines 24- 27, page 15, lines 6-9, page 16, lines 19 – 23, page 17, lines 20-23, with respect to claims 1-18, 20, 21 and 23 under 102(e) rejection has been withdrawn and the claims are now allowed.

Information Disclosure Statement

4. The information disclosure statement (IDS) submitted on 3/31/04 has been considered by the examiner.

Reasons For Allowance

5. The following is an examiner's statement of reasons for allowance:
Claims 1-18 and 20, 21 and 23 renumbered as 1-21 and are allowed.

The present invention is directed towards an optical imaging system design is to capture nearly error-free images. The optical design thus specifically seeks to correct for certain known optical influences, including, for example, aberration effects of a medium through which images are captured and unwanted reflections (e.g., scattering) within the imaging system. Each independent claim identifies the uniquely distinct feature of claim 1, recites an optical imaging system for reducing focus-related aberrations comprising: "optics, including a wavefront coding element, for imaging a wavefront of the imaging system to an intermediate image and for modifying phase of the wavefront such that an optical transfer function of the optical imaging system is substantially invariant to the focus-related aberrations induced, over time, by an intervening medium", "a decoder for processing data from the detector to process phase effects induced by the optics to form a final image that is substantially clear of the focus-related aberrations". The closest prior art Dowski, Jr. et al., (US.6,525,302 B2) discloses apparatus and methods for using Wavefront Coding to improve contrast imaging of objects, which are transparent, reflective or vary in thickness or index of refraction. Dowski does not teach "optics, including a wavefront coding element, for imaging a wavefront of the imaging system to an intermediate image and for modifying phase of the wavefront such that an optical transfer function of the optical imaging system is substantially invariant to the focus-related aberrations induced, over time, by an intervening medium", "a decoder for processing data from the detector to process phase effects induced by the optics to form a final image that is substantially clear of the focus-related aberrations", as

commonly included in each of the independent claims 1,15 and 16. The above reference either singularly or in combination, fails to anticipate or render the above limitations obvious.

Claim 15, is representative of claim 1.

Claim 16, is representative of claim 1.

Regarding claim 20, recites an imaging system for reducing reflection from a detector comprising: “ tilt optics having a tilt surface that tilts away from a plane perpendicular to the imaged electromagnetic energy, for reflecting back-scattered radiation to an aperture stop of the imaging system” and “a post processor for reducing distortion effects introduced by the reflection”. Dowski discloses surface slope of a phase object where δ is the phase delay due to the phase object. The value of this phase delay is dependent on the size of the phase object, the local surface slope, and the change in index of refraction. it is this phase delay due to the phase object that is transferred to image intensity with phase contrast imaging. Dowski does not teach “ tilt optics having a tilt surface that tilts away from a plane perpendicular to the imaged electromagnetic energy, for reflecting back-scattered radiation to an aperture stop of the imaging system” and “a post processor for reducing distortion effects introduced by the reflection”, as commonly included in the independent claim 20. The above reference either singularly or in combination, fails to anticipate or render the above limitations obvious.


6. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Contact Information

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sheela C Chawan whose telephone number is. 571-272-7446. The examiner can normally be reached on Monday - Thursday 7.30 - 6.00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Bella reached on 571-272-7778. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


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April 21, 2006